

An Integrated Adaptive Approach for Planning and Managing Coastal Ecosystem Restoration Projects

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Abstract

The ecological performance of ecosystem restoration projects is uncertain. For this reason, numerous major restoration programs are recommending the incorporation of adaptive management principles into the planning process for restoration projects. However, the way that these principles are to be applied to maximize the probability of success is generally not specified. The present study developed a method for applying the principles of adaptive management to planning and managing coastal ecosystem restoration projects. The method employs a conceptual model to couple restorative actions to performance goals. For management, the method uses a system-development matrix to assist in identifying the state of the system for which restorative actions are being applied. The matrix defines development in terms of structure and function, but can accommodate other performance and development characteristics. Monitoring of the system provides input on where the system fits within the matrix. Phrases in the matrix identify causes resulting in the state of the system and point toward possible corrective actions to be taken if needed. Successful tests of the matrix have been done on projects involving infaunal community development on dredged material, seagrass system restoration, and a tidal marsh system restoration.

Salt Marsh Re-Colonization

Keith Dublanica

Skokomish Indian Tribe

Abstract

The Skokomish Indian Reservation sits on lower Hood Canal, at the mouth of the Skokomish River, at the southeast corner of the Olympic Peninsula. The 5,000-acre reservation includes approximately 2,200 acres in a combination of estuarine and palustrine wetlands. Within the estuarine community, portions of the landscape were sold by tribal members, diked, then drained in the late 1930's for agriculture. These two areas, referred to as the east and west cells, cover 600 and 800 acres, respectively. The ground has laid fallow for most of the last decade. A seawall facing Hood Canal experienced a breach in December 1994 due to flooding from a rain-on-snow event, high tide and offshore winds.

The Skokomish Tribe has been tracking the changes in salt marsh re-colonization of the formerly diked areas, using aerial infrared photography, vegetation transects, and salinity and sediment measurements. Redox, biomass, and other attributes are intended for later quantification. The study area has a reference, undisturbed high marsh, treated as a control, as well as an intact diked area as a secondary control. The Black Hills Audubon Society has assisted in migratory bird counts on the newly exposed mud flats. Because the landscape is home to the Skokomish Indian Nation, there are elements of cultural as well as ecological restoration that come into play.

The Skokomish Tribe has been involved in re-securing the landscape back to tribal trust status, and is currently embroiled in the Federal Energy Regulatory Commission (FERC) re-licensing of Tacoma Public Utilities Cushman Project, #460. It is the tribe's desire to secure the landscape and to breach additional sites within the diked network identified by the Army Corps of Engineers as the most appropriate. Coincidentally, the breach of 1994 was a major area identified by the Corps in a report submitted earlier that month.